**TIM 58: Systems Analysis and Design**

**Homework Set #2**

*Due as a paper copy in class at the beginning of class Tuesday January 24. Please use a* ***computer and printer*** *to ease in grading.*

Provide short-medium paragraphs and calculations as necessary to the following questions. Each question is worth 3 points.

1. **List and describe three aspects (or techniques) of feasibility analysis.**
2. **Describe a “risky” project in terms of technical feasibility.**
3. **Following up on question 2 above, in class, Professor Haddad gave an example of a project that was larger but less technically risky than a smaller project that had the same goal in mind (electricity generation). What were the two projects and why was one less risky than the other?**
4. **Explain net present value and return on investment, including the equations that determine them. Why would these calculations be used?**
5. **What is the net present value of the following project proposal’s estimated costs and benefits (show your work)? The estimation period is 3 years and the risk-free interest rate is 3%. In the first year of the project, there will be an investment of $400,000 in computers and other infrastructure. In the third year, an additional investment of $100,000 will be made in an additional large computer. Software licenses will cost $15,000 per year all three years. Salaries will cost $500,000 in year 1 and $80,000 each in years 2 and 3. There will be no revenue in year 1. Year 2 revenue will be $550,000, and year 3 revenue will be $800,000. Based on your analysis, should this project be pursued? (*Hint: to generate the NPV, make a table that has years as columns and costs and benefits as rows. No need to add any additional costs or benefits. Calculate the present values for each year, add up the total adjusted costs and benefits, and then take the difference to get the NPV. This can be done with a spread sheet. Extra hint: use the carat sign in Excel to raise a number to a power. For example, 5^2 = 25.)***
6. **What is stakeholder analysis? Name and describe three categories of stakeholder that would be relevant for most projects.**
7. **As pointed out in class, there is a mistake in the calculations in Figure 2-16 in the book. What is that mistake? What part of the use case analysis gets left out if that mistake goes undetected and why is that important? How many hours of work are lost in the final estimate of work effort (show the calculation)?**
8. **What is scope creep, and how can it be managed?**
9. **Figures 2-17 and 2-18 in the book give examples of a Work Breakdown Structure (WBS) template followed by how the template has evolved after one iteration. WBS templates are part of project implementation planning. The book talks about the iterative and evolutionary nature of the WBS. While it makes sense that project planning evolves as the goals and challenges are better understood, how would you as a project planner avoid scope creep?**
10. **On P. 83 of the textbook, answer Minicase #1. *(Hint: use figure 2-1 and the surrounding text to come up with categories. Then figure out what you already know based on the minicase. Then generate a list of additional information needed to complete the System Request. Show your work.)***